Frequency and Wavelength Worksheet

This worksheet is designed to give you some practice using the general wave equation: $c=\lambda \nu$. You'll be expected to use this equation correctly or the upcoming chapter test.

$c = 3.00 \times 10^8$ m/s λ = wavelength ν = frequency Hz (s^{-1})

$1m = 10^9 nm$

1. What is the c if $\lambda = 8$ m and $\nu = 20$ Hz?

2. What is the λ if $\nu = 25$ Hz?

3. What is the ν if $\lambda = 10$ m?

4. What is the ν if $\lambda = 1\ 000$**cm** (Watch your units!)?

5. What is the λ if and $\nu = 3$ Hz?

6. What is the ν if and $\lambda = 3$ m?

7. What is the ν if and $\lambda = 3 \times 10^{-12}$ nm?

8. What is the λ if and $\nu = 790$ Hz?

9. What is the ν if and $\lambda = 0.25$ m?

10. Determine the frequency of light with a wavelength of 4.2×10^{-7} cm. (Watch your units!)

11. How long is the wavelength of KAJA radio whose broadcast frequency is 97.1 MHz? (97.1 MHz =97,100,000 Hz)

12. Derive an equation expressing E in terms of h, c, and l, using the following two equations:

$E = h\boldsymbol{\nu}$ and $c = \lambda \boldsymbol{\nu}$

13. Calculate the wavelength of the electromagnetic radiation whose frequency is 7.5×10^{12} Hz.

14. Blue light has a frequency of 6.98×10^{14} Hertz. Calculate the wavelength of blue light **in nanometers.**

Complete the following chart:

15.

Isotope	**protons**	**neutrons**	**electrons**	**Complete symbol**
Oxygen-17				
	47			
			72	
				^{235}U